

PATENT COOPERATION TREATY

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 17 November 2000 (17.11.00)	
International application No. PCT/NL00/00141	Applicant's or agent's file reference BO 42428
International filing date (day/month/year) 03 March 2000 (03.03.00)	Priority date (day/month/year) 05 March 1999 (05.03.99)
Applicant HAAK, Gerhardus, Sjoerd, Jozef et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

04 October 2000 (04.10.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Zakaria EL KHODARY Telephone No.: (41-22) 338.83.38
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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 06 JUL 2001

W/OA REPORT

Applicant's or agent's file reference BO 42428	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL00/00141	International filing date (day/month/year) 03/03/2000	Priority date (day/month/year) 05/03/1999
International Patent Classification (IPC) or national classification and IPC G01N1/34		
Applicant SPARK HOLLAND B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 9 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 7 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 04/10/2000	Date of completion of this report 04.07.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Purdie, D Telephone No. +49 89 2399 2187 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL00/00141

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-26 as originally filed

Claims, No.:

1-30 as received on 17/05/2001 with letter of 16/05/2001

Drawings, sheets:

1/12-12/12 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL00/00141

- ☐ the drawings, sheets:
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)
6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
- ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-30
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-10
	No:	Claims	11-30

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International application No. PCT/NL00/00141

Industrial applicability (IA) Yes: Claims 1-30
 No: Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item IV

Lack of unity of invention

The application consists of one independent process claim (claim 1) and three independent instrument claims (claims 8, 11 and 22). Claim 8 has been judged to be both novel and inventive (see section V). The technical feature which defines the contribution that the invention defined in claim 8 makes over the prior art, called the "special technical feature" (Rule 13.2 PCT), is the "heating and/or cooling means" (defined further in the claim).

The subject-matter of independent claim 11 is not inventive, as is the subject-matter of claim 22 (see the grounds for these objections). Furthermore, none of the claims dependent on either claim 11 or claim 22 is inventive. None of the claims 11-30 thus contain any "special technical features", as defined in Rule 13.2 PCT and, as a consequence, the requisite unity of invention (Rule 13.1 PCT) does not exist for this application.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: US-A-5 512 168, 30 April 1996
- D2: US-A-5 260 028 (ASTLE THOMAS W) 9 November 1993 (1993-11-09)
- D3: ZHOUYAO ZHANG ET AL: 'QUANTITATIVE EXTRACTION USING AN INTERNALLY COOLED SOLID PHASE MICROEXTRACTION DEVICE' ANALYTICAL CHEMISTRY, vol. 67, no. 1, 1 January 1995 (1995-01-01), pages 34-43, XP000482593 ISSN: 0003-2700

Claims 1-7

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses a solid phase extraction process for extracting an analyte from a sample comprising *all* of the following steps (the references in parentheses apply to D1):

conditioning a sorbent in a cartridge by passing a liquid suitable for conditioning through the cartridge (see, e.g., col. 10, lines 26-30. Also, col. 10, lines 49-51);

applying a sample that contains the analyte to the sorbent by passing a liquid which contains the sample through the cartridge (see, e.g., col. 10, lines 52-54);

washing the sorbent by passing a wash liquid through the cartridge (see, e.g., col. 10, lines 55-59);

eluting the analyte from the sorbent by passing an elution liquid through the cartridge (see, e.g., col. 11, lines 1-6).

The above process is carried out in a laboratory environment (see, e.g., col. 1, lines 29-31), the temperature of which is controlled. Thus the temperature of the "cartridge" is controlled during all of the above steps. However, nowhere in document D1 is raising or lowering the temperature of the cartridge to a predetermined value during any of the steps disclosed or suggested. This difference makes claim 1 new over D1 (Article 33(2) PCT).

Document D3 discloses cooling of a sorbent in order to increase the absorption of volatile analytes. However this is done in a gas environment (the "headspace above sample matrices" - see, e.g., abstract). There is nothing in D3 to suggest that this procedure of lowering the sorbent temperature would bring benefit to solid phase extraction performed using a liquid sample containing phase as specified in claim 1. Claim 1 is therefore considered as being inventive (Article 33(3) PCT).

Claims 2-7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claims 8-10

The document D1 is regarded as being the closest prior art to the subject-matter of claim 8, and discloses a solid phase extraction instrument (the references in parentheses applying to D1):

at least one line system for transporting a liquid (see, e.g., col. 6, lines 53-61);

a cartridge exchanging system ("stand 22") having at least one cartridge holder ("receiver tube 24") for holding a cartridge ("sorbent material 36") incorporated in the line system (see, e.g., col. 3, lines 40-44. Also col. 4, lines 63-67);

a sample feed device connected to the line system (the sample originates in the "containers 20" - see, e.g., col. 3, lines 49-51);

a solvent feed device connected to the line system (the solvent also originates in the "containers 20" - col. 3, lines 49-53);

wherein the sample feed device and the solvent feed device are connected by the line system to the cartridge holder such that a liquid can be transported from the sample feed device or the solvent feed device to the cartridge holder and can pass through the cartridge (see, e.g., col. 4, line 63 - col. 5, line 17. Also, e.g., col. 6, lines 11-20).

The subject-matter of claim 8 differs from this known instrument in that the line system is provided with heating and/or cooling means such that the liquid issuing from the sample feed device or the solvent feed device flows successively through the said heating and/or cooling means and the at least one cartridge holder. Claim 8 is thus novel over D1. As discussed above with respect to claim 1, nowhere in the prior art documents cited in the International Search Report is the suggestion made to introduce such a heating and/or cooling means. Claim 8 is thus considered to be inventive.

Claims 9 and 10 are dependent on claim 8 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claims 11-21

With the exception of the "control system", all the features in the first 11 lines of claim 11 are present in claim 8 and, as discussed above, have been previously disclosed in document D1. Furthermore, the cartridge exchange system disclosed in D1 comprises at least one cartridge magazine having a multiplicity of cartridge locations ("stand 22" holds several cartridge holders, therefore several cartridges, and thus a multiplicity of cartridge locations - see, e.g., col. 5, lines 17-22). Also disclosed in D1 is a control system which is equipped to determine one of the multiplicity of cartridge locations depending on a command given to the control system via input means (see, e.g., col. 6, lines 1-19).

Claim 11 differs from the disclosure in D1 in that it includes a transport system for moving cartridges, said transport system controlled such that it can move a cartridge between a cartridge location and a cartridge holder, or vice versa. However, the

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EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00141

selection of different cartridges is disclosed in D1 (e.g., col. 4, line 63 - col. 5, line 16). Use of an automated system to select and move these cartridges certainly cannot be considered inventive.

Claim 11 is thus novel over D1, but not inventive.

The following claims are dependent on claim 11 and are also not inventive:

Claims 12-17 These claims appear to contain no extra features the presence of which requires inventive activity.

Claim 18 See "multi-port valve 76" (Fig. 3b)

Claims 19-21 These claims appear to cover options which would be obvious to the skilled man.

Claims 22-30

As with claim 11, all the features in the first 11 lines of claim 22, with the exception of the "control system" which will be discussed, are present in claim 8 and, as discussed above for that claim, have been previously disclosed in document D1. In addition, the "solvent feed device" of claim 22 comprises an "injection pump consisting of a piston housing, in which a piston is accommodated". Although such an injection pump is not disclosed in D1, its inclusion cannot be considered inventive, especially considering the disclosure in D1 of a diaphragm pump which plays the same role (col. 7, lines 18-39). The diaphragm pump disclosed in D1 is controlled by the "control system" ("controller 50"), making such control of an injection pump, as specified in claim 22, obvious.

Claim 22 is thus novel over D1, but not inventive.

The following claims are dependent on claim 22 and are also not inventive:

Claims 23-26 The extra features defined in these claims either are standard design options or otherwise require no inventive activity.

Claims 27-28 See "valve 58" and "pump assembly 64" in Fig. 3b.

Claim 29 See "multi-port valve 76", Fig. 3b.

Claim 30 See col. 6, lines 1-20.

Re Item VII

Certain defects in the international application

The reference signs in the claims are not placed in parentheses (Rule 6.2(b) PCT).

A document reflecting the prior art described on page 5, is not identified in the description (Rule 5.1(a)(ii) PCT).

Re Item VIII

Certain observations on the international application

The claims do not meet the clarity requirements of Article 6 PCT for the following reasons:

Claim 1

The method of claim 1 comprises one or more of four steps, and is characterised by raising or lowering the temperature of the "cartridge" to a predetermined value during one or more of these steps. It should have been made clear in the claim that the step or steps in which the temperature is raised or lowered is the same one or ones that are carried out as the method.

Claim 11

Claim 11 is defined in terms of items which are not features of the claim. These items are the "cartridges" and the "cartridge magazine" ("at least one cartridge magazine holder in which at least one cartridge magazine having a multiplicity of cartridge locations can be accommodated."). A lack of clarity results.

Claim 14

The "cartridge grippers" are unclear due to the fact that they are defined in terms of the "cartridge" which is not a definite feature of any of the claims.

Claim 28

It is not clear what is meant by "the other side to the line system".

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Gerhardus Sjoerd Jozef HAAK,
Jan Albert OOMS, Johannes Hendrik HIDDING,
Otto HALMINGH

Attn: PCT Branch

Application No. U.S. National Stage of PCT/NL00/00141

Filed: September 5, 2001

Docket No.: 110510

For: SOLID PHASE EXTRACTION INSTRUMENT AND METHOD FOR SOLID
PHASE EXTRACTION

**SUBMISSION OF THE ANNEXES TO THE
INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

Attached hereto is the annexes to the International Preliminary Examination
Report (Form PCT/IPEA/409). The attached material replaces the material in the claims.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Thomas J. Pardini
Registration No. 30,411

JAO:TJP/cmm

Date: September 5, 2001

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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09/914794

Amended claims

JC12 Rec'd PCT/PTO 05 SEP 2001

1. Solid phase extraction process for extracting an analyte from a sample comprising one or more of the following steps:

- 5 a) conditioning a sorbent in a cartridge by passing a liquid suitable for conditioning through the cartridge;
- b) applying a sample that contains the analyte to the sorbent by passing a liquid which contains the sample through the cartridge;
- c) washing the sorbent by passing a wash liquid being through the cartridge;
- 10 d) eluting the analyte from the sorbent by passing an elution liquid through the cartridge,

characterised in that the temperature of the cartridge is raised or lowered to a predetermined value during one or more of the steps a) to d).

- 15 2. Solid phase extraction process according to Claim 1, characterised in that the temperature of the cartridge is raised or lowered by heating or cooling one or more of the liquids used in step a) to d) before feeding to the cartridge.

3. Solid phase extraction process according to Claim 1 or 2, characterised in that the
- 20 temperature of the cartridge is raised or lowered in step a), preferably by heating or cooling the liquid for conditioning of the sorbent.

4. Solid phase extraction process according to Claim 1 or 2, characterised in that the
- temperature of the cartridge is raised or lowered in step b), preferably by heating or cooling
- 25 the liquid which contains the sample.

5. Solid phase extraction process according to Claim 1 or 2, characterised in that the
- temperature of the cartridge is raised or lowered in step c), preferably by heating or cooling
- the wash liquid.

30

6. Solid phase extraction process according to Claim 1 or 2, characterised in that the
- temperature of the cartridge is raised or lowered in step d), preferably by heating or cooling
- the elution liquid.

7. Solid phase extraction process according to one of the preceding claims which also comprises the step of drying the cartridge, before or after one or more of the steps a) to d), drying being carried out by passing a suitable gas through the cartridge, characterised in that the gas is heated prior to feeding to the cartridge.

5

8. Solid phase extraction instrument comprising:

- at least one line system for transporting a liquid;
- a cartridge exchanging system having at least one cartridge holder 3 for holding a cartridge 11 incorporated in the line system;
- 10 - a sample feed device 41 connected to the line system;
- a solvent feed device 40 connected to the line system;

wherein the sample feed device 41 and the solvent feed device 40 are connected by the line system to the cartridge holder 3 such that a liquid can be transported from the sample feed device 41 or the solvent feed device 40 to the cartridge holder 3 and can pass through the
15 cartridge 11,

characterised in that

the line system is provided with heating and/or cooling means 73 such that the liquid issuing from the sample feed device 41 or the solvent feed device 40 flows successively through the heating and/or cooling means 73 and the at least one cartridge holder 3.

20

9. Solid phase extraction instrument according to Claim 8, comprising a control system, characterised in that the control system is equipped to be able to control the heating and/or cooling means.

25

10. Solid phase extraction instrument according to Claim 8 or 9, characterised in that the line system is provided with a gas connection and valve means in order to connect the gas connection to the heating and/or cooling means 73 and the at least one cartridge holder 3 in such a way that gas issuing from the gas connection flows successively through the heating and/or cooling means 73 and the at least one cartridge holder 3.

30

11. Solid phase extraction instrument, comprising:

- at least one line system for transporting a liquid;

- a cartridge exchanging system having at least one cartridge holder 3 for holding a cartridge 11 incorporated in the line system;
- a sample feed device 41 connected to the line system;
- a solvent feed device 40 connected to the line system; and
- 5 - a control system,

wherein the sample feed device 41 and the solvent feed device 40 are connected by the line system to the cartridge holder 3 such that a liquid can be transported from the sample feed device 41 or the solvent feed device 40 to the cartridge holder 3 and can pass through the cartridge 11,

10 characterised in that
the cartridge exchanging system comprises:

- at least one cartridge magazine 17 having a multiplicity of cartridge locations, or at least one cartridge magazine holder 14 in which at least one cartridge magazine 17 having a multiplicity of cartridge locations can be accommodated; and

15 - a transport system for moving cartridges 11; and

in that the control system is equipped to:

- determine one of the multiplicity of cartridge locations depending on a command given to the control system via input means; and
- control the transport system to move a cartridge 11 between a cartridge location and a

20 cartridge holder 3, or vice versa.

12. Solid phase extraction instrument according to Claim 11, characterised in that the cartridge exchanging system comprises two of said cartridge holders 3 incorporated in the line system and that the control system is equipped to control the transport system to move a

25 cartridge 11 between the two cartridge holders 3.

13. Solid phase extraction instrument according to Claims 11 or 12, characterised in that the transport system comprises a guide bridge 18 with one or more cartridge grippers 19 mounted thereon and movable along said guide bridge 18, in that the guide bridge 18 is

30 mounted above the at least one cartridge magazine 17, or the at least one cartridge magazine holder 14, and in that the guide bridge 18 and the at least one cartridge magazine 17, or the at least one cartridge magazine holder 14, are movable relative to one another in a direction

essentially transverse to the longitudinal direction of the guide bridge 18, and in that the control system is equipped to control this mutual movement.

14. Solid phase extraction instrument according to claim 12 and 13, characterised in that the transport system comprises two cartridge grippers 19 for picking up, moving and setting down cartridges 11, which cartridge grippers 19 can be controlled essentially independently of one another by the control system.

15. Solid phase extraction instrument according to Claim 14, characterised in that the control system is equipped to move the at least one cartridge magazine 17, or the at least one cartridge magazine holder 14.

16. Solid phase extraction instrument according to Claim 13 or 15, characterised in that this comprises at least two cartridge magazines 17, or cartridge magazine holders 14, which are positioned alongside one another viewed in the longitudinal direction of the guide bridge 18 and in that said cartridge magazines 17, or cartridge magazine holders 14, are movable relative to one another in the transverse direction of the guide bridge 18, and in that the control system is equipped to move said cartridge magazines 17, or cartridge magazine holders 14, relative to one another.

17. Solid phase extraction instrument according to one of Claims 11 - 16, characterised in that the input means are equipped for entering an operator's choice for a specific solid phase extraction process and in that the control system is equipped to select the type of cartridge belonging to that specific solid phase extraction process; and/or in that the input means are equipped to enter an operator's choice for a specific type of cartridge, the control system being equipped to determine the specific cartridge location which contains an unused cartridge of that selected or specified type of cartridge.

18. Solid phase extraction instrument according to one of Claims 11 - 17, wherein the at least one line system comprises at least one single or multi-way valve which is functionally connected to the control system for operation, and comprises at least two cartridge holders 3, characterised in that the control system is equipped to:

a) switch two cartridge holders in series; and/or

b) to switch the one cartridge holder in liquid communication with a solvent feed device located upstream thereof and to be able to switch the other cartridge holder in simultaneous liquid communication with a sample feed device located upstream thereof; and/or

5 c) to switch the one and the other cartridge holder each in mutual simultaneous liquid communication with a solvent feed device or a sample feed device.

19. Solid phase extraction instrument according to one of Claims 11 - 18, characterised in that the at least one cartridge magazine 17 and/or the cartridges 11 are provided with code means for the type of cartridge in each cartridge location or for the type of cartridge, and in
10 that the solid phase extraction instrument is provided with reading means for reading the code means and for transmitting the code(s) read to the control system.

20. Solid phase extraction instrument according to Claim 19, characterised in that the
15 control system is equipped to control the reading means to read the code means in order to store the type of cartridge associated with each cartridge location in a cartridge memory.

21 Solid phase extraction instrument according to Claim 20, characterised in that the control system is equipped to assign a used or unused status to each cartridge location in the
20 cartridge memory.

22. Solid phase extraction instrument comprising
- at least one line system for transporting a liquid;
- a cartridge exchanging system having at least one cartridge holder 3 for holding a
25 cartridge 11 incorporated in the line system;
- a sample feed device 41 connected to the line system;
- a solvent feed device 40 connected to the line system; and
- a control system,

wherein the sample feed device 41 and the solvent feed device 40 are connected by the line
30 system to the cartridge holder 3 such that a liquid can be transported from the sample feed device 41 or the solvent feed device 40 to the cartridge holder 3 and can pass through the cartridge 11,

characterised in that

the solvent feed device comprises an injection pump 44 consisting of a piston housing 45, in which a piston 46 is accommodated, which piston 46 can be controlled by means of the control system for movement and

5 in that the control system is equipped to control the suction stroke speed and/or the suction stroke length of the injection pump 44 so as to draw in solvent at a specific speed or in a specific quantity.

23. Solid phase extraction instrument according to Claim 22, characterised in that the injection pump 44 has been designed with a capacity such that it is able to take up the total
10 quantity of solvent required for a solid phase extraction step in order to be able to force this through the line system with an uninterrupted delivery stroke.

24. Solid phase extraction instrument according to Claim 23, characterised in that the control system is equipped first to control the injection pump 44 to take up the total quantity
15 of solvent required for a solid phase extraction step and then to control the injection pump 44 to force this total required quantity through the line system with an uninterrupted delivery stroke.

25. Solid phase extraction instrument according to one of Claims 22 - 24, characterised in
20 that the control system is equipped to be able to control the injection pump 44 for a delivery stroke with an essentially constant speed or delivery pressure.

26. Solid phase extraction instrument according to one of Claims 22 - 25, characterised in
25 that a pressure sensor 48 for measuring the pressure in the injection pump 44 is provided in or by the injection pump 44, which pressure sensor 48 is actively connected to the control system in order to transmit a pressure signal to the latter.

27. Solid phase extraction instrument according to one of Claims 22 - 26, characterised in
30 that the solvent feed device 40 comprises a first multi-way valve 49 to which, on the one side, the injection pump 44 is connected by means of the suction channel 47 and which, on the other side, is provided with a number of solvent connections to which solvent reservoirs can be connected or have been connected,

and in that the control system is equipped to switch the multi-way valve 49 during suction by the injection pump 44 in such a way that a mixture is drawn in which is collected in the injection pump and/or to switch the multi-way valve 49 prior to suction by the injection pump 44.

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28 Solid phase extraction instrument according to Claim 27, characterised in that the suction channel 47 of the injection pump 44 connected to one side of the multi-way valve 49 is also a pressure channel and in that the multi-way valve 49 is further connected on the other side to the line system.

10

29. Solid phase extraction instrument according to Claim 27 or 28, characterised in that the solvent feed device 40 comprises at least a further multi-way valve 56 to which, on the one side, one of the solvent connections of the first multi-way valve 49 is connected and which, on the other side, is provided with further solvent connections.

15

30. Solid phase extraction instrument according to one of Claims 22 - 29, characterised in that the control system comprises input means for entering an operator's choice for

- a specific solid phase extraction process; and/or
- a specific solvent or combination of solvents; and/or
- 20 - a specific delivery pressure; and/or
- a specific suction speed; and/or
- a specific solvent volume; and/or
- a specific ratio of solvent volumes.